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UNIT-I

TOOLS FOR ANALYSING INTERNATIONAL ECONOMICS: PART-I

INTERNATIONAL TRADE EQUILIBRIUM

The classical theory of International Trade relied excessively upon highly oversimplified and restrictive assumptions for analysing the specialisation of trading countries without providing answer to the crucial question: what precisely is the rate of exchange between the traded commodities? The new classical model developed by writers as Haberler,Leontief,Marshall,Edgeworth,Lerner and Meade employed advanced geometrical techniques to deal with this issue which include the production possibility curves, the community indifference curves, trade indifference curves and offer curves.

THE PRODUCTION POSSIBILITY CURVE OR OPPORTUNITY COST CURVE:

A production possibility curve is the locus of such combinations of two commodities that a country can produce, given the techniques of production and the fullest utilisation of all the available factors of production. It is also called as production frontier, transformation curve, product substitution curve or an opportunity cost curve. If all the productive resources are employed in the production of commodity X there can be maximum possible production of this commodity with no output of the other commodity Y.On the opposite, if all the resources are utilised in the production of Y the country will be able to produce maximum quantity of Y with no output of X commodity. Between these two extremes situations, there can be various production possibilities involving more or less quantities of the two commodities. If production of X is to be increased there will be diversion of resources from the production of Y to the production of X resulting in a reduced production of Y.The curve drawn on the basis of alternative production possibilities is called as the production possibility curve which is based upon the concept of opportunity cost. The quantity of Y that is given up in order to produce more units of X is the opportunity cost of producing a given quantity of X commodity. **That is why it is also known as the opportunity cost curve. It represents the production frontier of the country**. The output more than the

production frontier is impossible and if the output is below the production frontier,that indicates the unemployment or excess capacity. When the production of Y commodity is reduced to produce more units of X commodity it signifies that Y has been transformed into X commodity. **That is why the opportunity cost curve is called as the transformation curve or product substitution curve.**

The slope of the opportunity cost curve is measured by the Marginal Rate of Transformation of Y into X (MRT).It is ratio of a change in the quantity of commodity Y to a change in the quantity of of commodity X.

$$MRT_{xy} = - \frac{\delta y}{\delta x}$$

Since additional production of X involves reduced output of Y the MRT is negative.It signifies that the production possibility curve or opportunity cost curve slopes negatively or slopes downwards from left to right.

The MRT_{xy} can also be expressed as a ratio of the marginal cost of X to the marginal cost of Y.

$$\delta C = MC_x . \delta x + MC_y . \delta y$$

where δC = Change in cost, δx = Change in the quantity of X commodity, δy = Change in the quantity of Y commodity. MC and MC are the marginal costs of X and Y commodities respectively.

$$\text{If} \qquad \delta C = 0$$

$$MC_x . \delta x + MC_y . \delta y = 0.$$

$$MC_x . \delta x = - MC_y . \delta y$$

$$\frac{MC_x}{MC_y} = - \frac{\delta y}{\delta x}$$

$$\text{or} \qquad MRT_{xy} = - \frac{\delta y}{\delta x} = \frac{MC_x}{MC_y}$$

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If the production is governed by constant returns the MC_x relative to MC_y remains unchanged or MRT_{xy} remains the same. It means the slope of the production possibility curve is the same and it is a negatively sloping straight line. If the production is governed by diminishing returns, MC_x rises relative to to the MC_y which signifies that the slope or MRT_{xy} increases. In such a situation, the opportunity cost curve is a negatively sloping concave curve to the origin. If the production is governed by increasing returns, the MC_x decreases relative to the MC_y and the slope of the the MRT_{xy} decreases. In this case the opportunity cost curve is a negatively sloping convex curve to the origin. These cases are depicted through figure 1(a),1(b) and 1(c) respectively in which AB is the production possibility curve or the opportunity cost curve.

Fig. 1 (a)

Fig. 1 (b)

Fig. 1 (c)
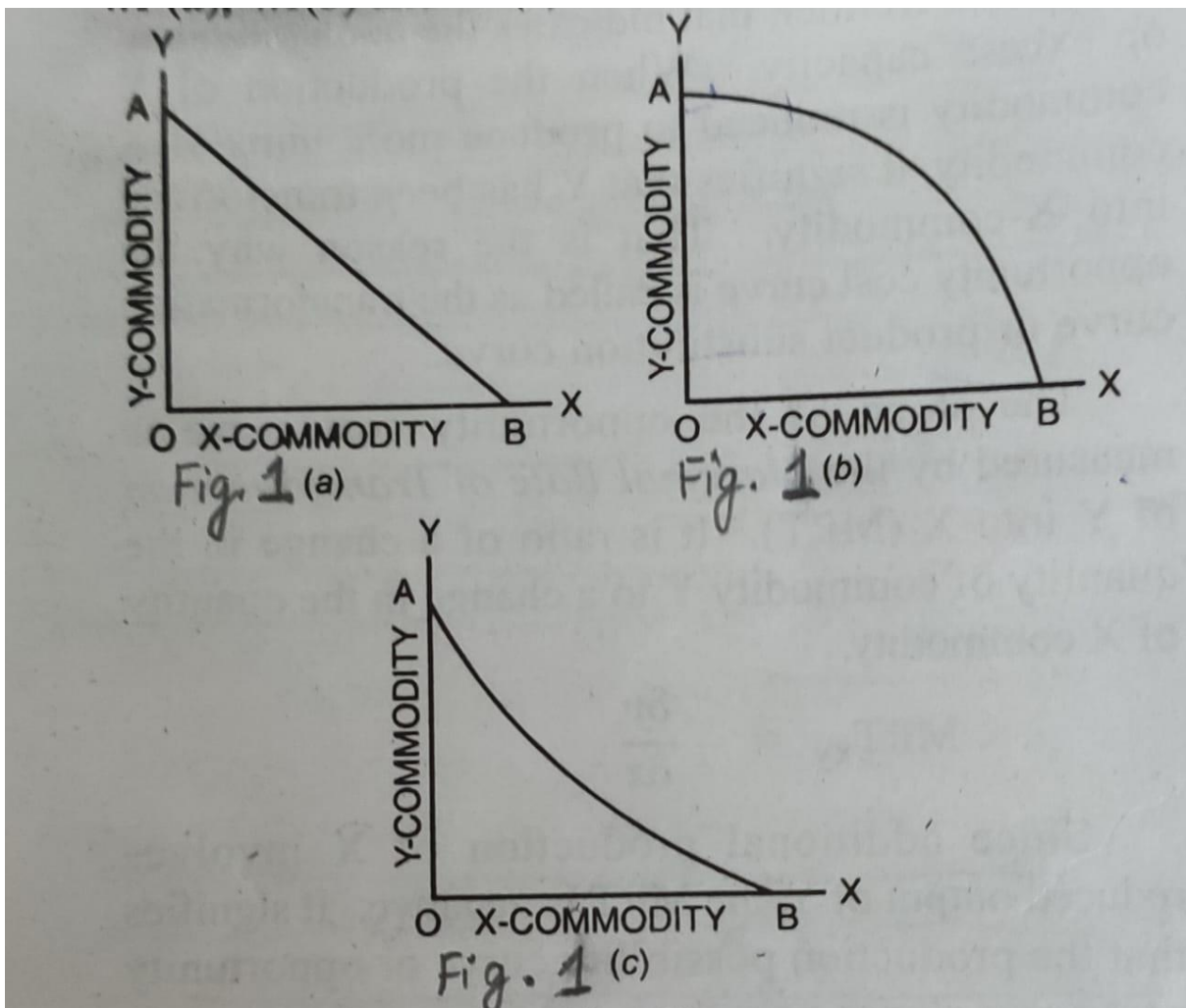
The opportunity cost curve simply indicates the alternative production possibilities but it does not show what combinations of the two commodities will actually be produced.
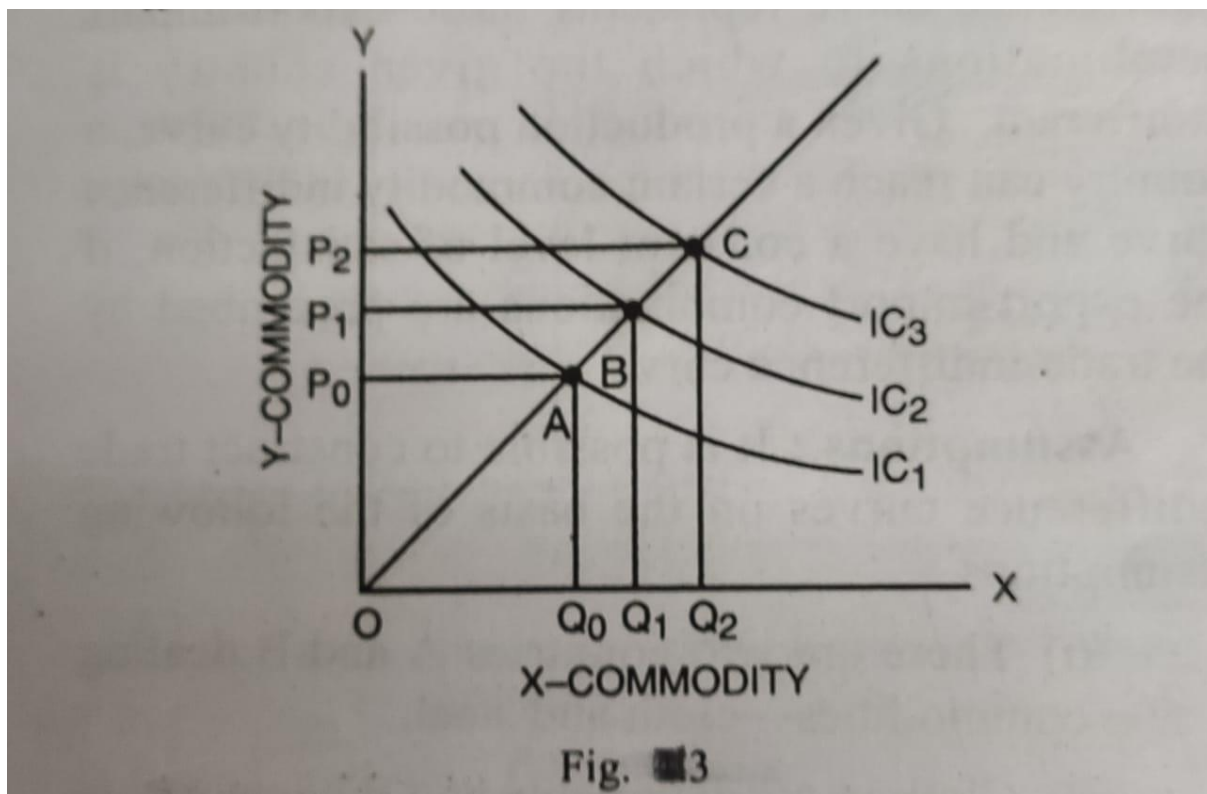
THE COMMUNITY INDIFFERENCE CURVE:

A community indifference curve or social indifference curve represent such combinations of two commodities which give equal satisfaction to the community and it is indifferent about those combinations. It is derived by the aggregation of the indifference curves of all the individuals in the society. Since all combinations on a community indifference curve give the same level of satisfaction,the increase in the quantity of one commodity must correspond with some decrease in the quantity of other commodity. Therefore the community indifference curve slopes downwards from left to right as shown in figure.2

Fig. 2
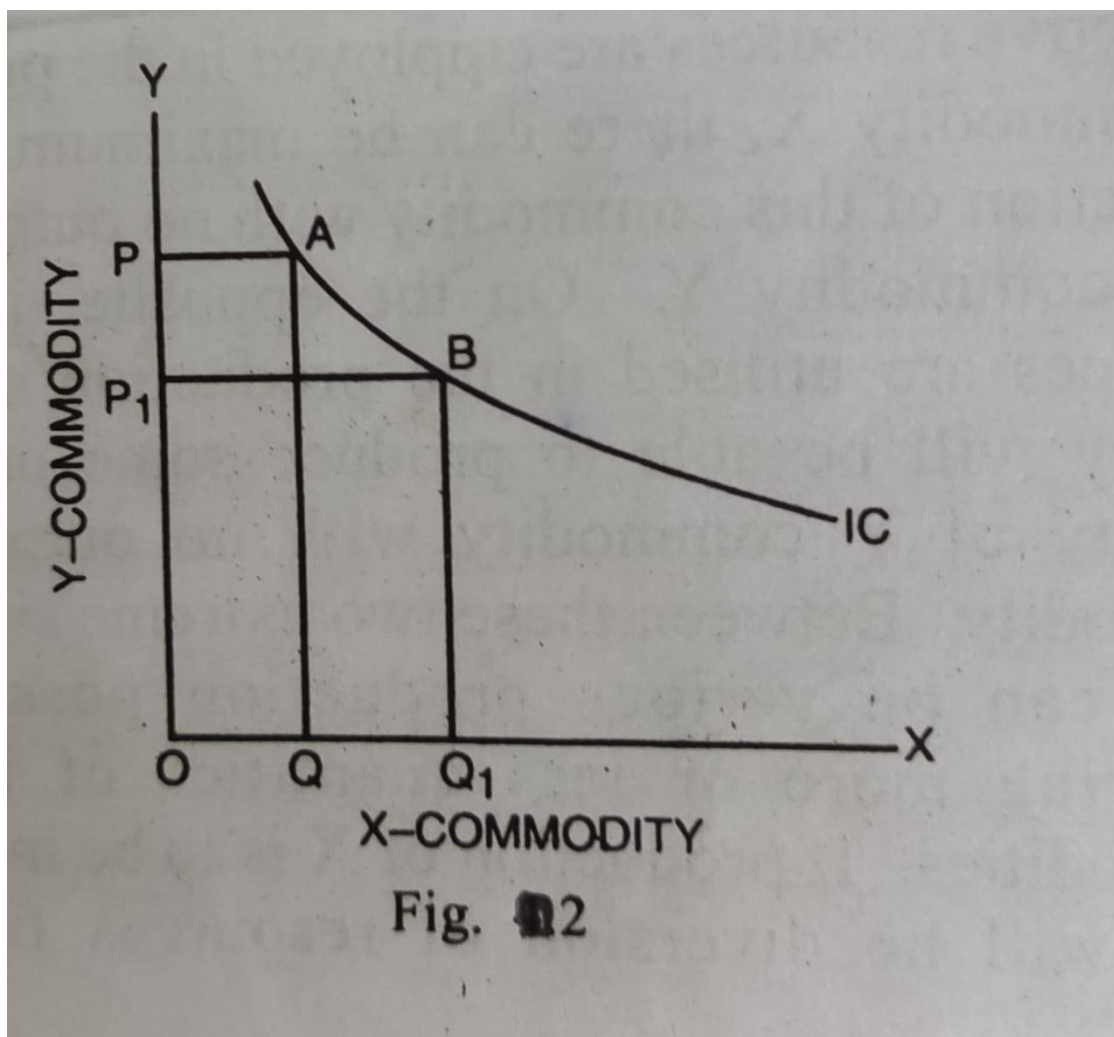
In this figure IC is the community indifference curve. The two combinations A and B of commodities X and Y are supposed to give equal satisfaction to the community. Combination A includes OQ of X + OP of Y and combination B includes OQ_1 of X + OP_1 of Y. In combination B, as society increases the consumption of X by QQ_1 it reduces at the same time, the consumption of Y by PP_1 so that compensating variation in satisfaction takes place and both the combinations A and B are equally preferred.

If a series of community indifference curves is shown such that higher the indifference curve, higher is the level of satisfaction from combinations lying upon it and vice-versa, that series of social indifference curves represents the community indifference map as shown in figure 3.

Fig. 3

In this figure IC_1, IC_2 and IC_3 represent a community indifference map. The combinations A, B and C lie on IC_1, IC_2 and IC_3 respectively. The combination C gives more satisfaction than B because it has more quantities of both the commodities and combination B gives more satisfaction than A.

The slope of the indifference curve is measured by the marginal rate of substitution of X for Y (MRS_{xy}) which is the quantity of Y which the society

gives up in order to have some quantity of X commodity. It is measured by the ratio of a change in quantity of Y commodity to a change in the quantity of X commodity.

$$MRS_{xy} = -\frac{\delta y}{\delta x}$$

As the community increases the consumption of an additional unit of X, it may be willing to give up less and less units of Y. Consequently the MRS_{xy} goes on diminishing and the community indifference curve follows the path of a negatively sloping convex curve to the origin. **Like the indifference curves the community indifference curve has the same set of properties-**

1. It slopes negatively.

2. It is convex to the origin.

3. Higher the indifference curve higher is the level of satisfaction and vice-versa.

4. It is non- intersecting.

Criticism of Community Indifference Curves:

1. Aggregation of individual tastes or preferences thereby ignoring the interpersonal differences in taste and inconsistency between tastes of individuals and society from period to period.

2. Cardinal measurement of utility which is defective.

3. Reliance on compensation principle which involves a strict value judgement which is not universally applicable.

4. Changes in distribution of income may bring about a shift in these curves.

5. Changes and factor prices which results in the change in distribution of income which will further cause shift in people's preferences.

6. Difficulty in the measurement of price change in the pre- trade and post-trade change in prices.

Haberler dismissed this device as unsatisfactory and **Vanek** recognised that the concept was used frequently but it was weak and shaky. Despite its flaws,

many economists still rely upon them for analysing trade equilibrium and several other fields of economic investigation.

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